

REMARKS

The Office Action dated December 5, 2000 has been received and carefully noted. The following remarks are submitted as a full and complete response thereto. Claim 8 has been added. Support for new claim 8 can be found at Specification page 13, lines 4-10 and FIG. 1. No new matter has been added or issues raised which require further consideration or search. Although a new claim has been added, Applicants submit that this claim depends upon Claim 1 which, as discussed below, should be allowable. Therefore, this new claim does not raise any new issues. Claims 1-8 are pending in this application and are submitted for consideration.

The Office Action rejected Claims 1-4 and 7 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,850,048 to Ruf (hereinafter "Ruf") in view U.S. Patent No. 5,614,687 to Yamada et al. (hereinafter "Yamada"). In particular, the Office Action asserted that Ruf generally discloses the features of claim 1. Furthermore, the Office Action asserted that Ruf discloses a designating means for designating any optional value serving as a BPM and a beat period as described in Claim 2 of the present invention; a fine adjustment means to effect a fine adjustment on a BPM and a beat period as described in Claim 3 of the present invention; and, the audio signal processing apparatus wherein indicators are provided to indicate a BPM and a beat period as described in Claim 4 of the present invention. The Office Action admits that Ruf does not disclose an audio signal as an input into the apparatus. The Office Action attempts to make up for the admitted deficiency by providing Yamada and asserting that Yamada discloses an apparatus which has an audio input means for inputting an audio

C

signal into the apparatus as seen in Fig. 1, wherein the apparatus detects beats per minute of the audio input signal via BPM detectors, and therefore that it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Yamada with the apparatus of Ruf to yield the present invention.

The Applicants respectfully traverse this rejection and submit that claims 1-4 and 7 recite subject matter that is not shown, taught or suggested by Ruf or Yamada, alone or in combination. For example, claim 1 defines an audio signal processing apparatus capable of changing the tempo of an input audio signal. The apparatus includes a magnification designating means capable of designating a plurality of different magnifications. The apparatus also includes a means capable of automatically detecting beats per minute of the input audio signal or a beat period of the input audio signal, changing the beats per minute or the beat period in accordance with a magnification designated by the magnification designating means, and changing the tempo of the input audio signal in accordance with the changed beats per minute or the changed beat period. As a result of the claimed invention, a device is provided that receives an audio signal as an input, automatically extracts the BPM of the signal and allows a user to adjust the tempo of the audio signal by making the measured BPM larger or smaller (magnification designated by the magnification means), and then, the device outputs the audio signal adjusted according to the adjusted tempo.

Ruf is directed to a simple electronic metronome for setting a musical tempo used to, for example, assist in the instruction of a music student. The Office Action seems maintain the assertion that Ruf describes detecting a BPM or beat period of an audio signal, changing the BPM or the beat period in accordance with the magnification

designated by a magnification means, and changing the tempo of that audio signal in accordance with the changed BPM or the changed beat period. However, nowhere does Ruf show, teach or otherwise describe the measurement of a BPM of an audio signal input, the changing of that BPM measurement, or the modification of the tempo of the audio signal in accordance with the changed BPM. In fact, there is no audio signal input described in Ruf at all, and any BPM measurement or tempo appears to be completely predetermined or preselected by a user (via the keypad). The Office Action asserted that the fact that Ruf discloses the input of BPMs inherently means that there is a measure or detection of BPMs. The Applicants respectfully disagree with this assertion and submit that Ruf discloses keyboard entry associated with a BPM which a processor in turn uses to generate an electrical signal to generate an output signal associated with the keyboard entry. In other words, the user selects the tempo or beats per measure, enters that selection into the structure by pressing the appropriate keys, then the apparatus of Ruf produces a beat based on the preselected BPM (i.e., the keystroke, not an audio signal). See Figs. 2 and 3, and column 2, line 43-column 3, line 16, column 5, lines 15-27. Furthermore, the audio and the visual displays are completely based on the preselection. Nowhere is it shown, taught or otherwise suggested that a BPM be measured from an input signal. Since there is no audio signal input and there is no measurement of BPMs of such a signal, even though Ruf shows modification of its pre-set BPM or Tempo, there can be no modification of an audio signal based on the changing of a BPM measurement.

Yamada is directed to a device for measuring the BPM of a tune. Yamada does not show, teach or suggest that a BPM measured may be modified (magnified) in

anyway, nor does it show, teach or suggest that the tune may be output from the device with a tempo according to a modified BPM measurement. Yamada simply teaches the measurement and display of the BPM of a tune (e.g., audio signal input). Since Yamada does not make up for the deficiencies in Ruf, the present invention as defined by Claims 1 and 7, and Claims 2-4 by their dependencies on Claim 1, could not be derived by combining the teachings of Yamada et al. with the teachings of Ruf. At best, it might be possible to combine the teachings of Yamada with Ruf (not admitted) to derive some sort of electronic metronome that could measure the BPM of an input signal, but certainly not one that could change the tempo of that input signal based on the changing of the measured BPM. However, there is no motivation to combine Ruf with Yamada since one describes an electronic metronome and the other a BPM measuring device, and neither describes or suggests the modification of a measured BPM and the output of a modified audio input signal based on the modified BPM measurement. Finally, Applicants submit that the combination of Ruf with Yamada would achieve unpredictable results since Yamada does not teach the output of its audio signal input being modified in any way, and Ruf does not teach the output of an audio signal input, and in fact Ruf does not teach an audio signal input at all. Thus, Applicants respectfully request that the rejection be withdrawn and that claims 1-4 and 7 be allowed to issue.

Claims 5 and 6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ruf in view of Yamada et al. and in further view of Rothbart (U.S. Patent No. 4,733,593). In particular, it is admitted in the Office Action that neither Ruf nor Yamada disclose a mixer for mixing a changed tempo signal with the input audio signal. The

U

Office Action therefore took the position that the teachings of Rothbart may be combined with those of Ruf and Yamada to yield the present invention.

Rothbart is directed to a metronome in which the type, pattern and frequency of beats are determined by data stored in a memory such as by manually entering the data via a keyboard. Nowhere does Rothbart describe or suggest the automatic measurement of a BPM of an audio signal input into the device, and in fact, there is no audio input signal whatsoever. Thus, Rothbart, like Ruf and Yamada, fails to teach or suggest means capable of automatically detecting BPM of an input audio signal or a beat period of the input audio signal, changing the BPM or the beat period in accordance with the magnification designated by magnification designating means nor changing the tempo of the audio signal in accordance with the changed BPM and the changed beat period. In view of the remarks made above regarding the rejection of claims 1-4 and 7, Applicants submit that Rothbart fails to show, teach or otherwise describe the deficiencies of Ruf or Yamada. Therefore, claims 5 and 6 by their dependencies on Claim 1, are not unpatentable over Ruf in view Yamada, in further view of Rothbart. Accordingly, Applicants request that the rejection be withdrawn and that claims 5 and 6 be allowed to issue.

In view of the foregoing, Applicants respectfully submit that claims 1-7 recite subject matter which is not shown, taught or otherwise suggested in any of the cited prior art, and that is more than sufficient to render claims 1-7 non-obvious. Accordingly, Applicants respectfully request that claims 1-7 be allowed to issue in a U.S. Patent.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by

telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account No. 01-2300.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'B. Tollefson', is written over a horizontal line.

Brian A. Tollefson
Registration No. 46,338

ARENT FOX KINTNER PLOTKIN & KAHN, PLLC
1050 Connecticut Avenue, N.W., Suite 600
Washington, D.C. 20036-5339
Tel: (202) 857-6000
Fax: (202) 638-4810

BAT:mnI